



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: **ATWATER et. al**

Application Serial No.: **10/684,063**

Application Filed: **October 8, 2003**

Attorney Docket No.: **CECOM 5465**

For: **MANGANESE, BISMUTH MIXED METAL OXIDE CATHODE FOR
RECHARGEABLE LITHIUM ELECTROCHEMICAL SYSTEMS**

Madame:

These Remarks are submitted in support of amending the above-identified application.

REMARKS

Claims 1-64 are now in the case. No new claims have been added.

This Amendment responds to the first Office Action in this case wherein the Examiner rejected claims 1-52 and allowed claims 53-64. The Examiner objected to claims 12, 24, 39 and 52 under 37 CFR § 1.75. The Examiner also provisionally rejected claims 1-52 under the judicially created doctrine of obviousness-type double patenting over claims 1-36 of co-pending U.S. Patent Application Serial No. 10,339,258, entitled "Lithium Manganese Bismuth Mixed Metal Oxide For Rechargeable Electrochemical Systems," rejected claims 1-2, 5, 7-8, 19-20, 22-26, 31-33, 35-41, 46 and 48-52 under 35 U.S.C. § 102(b) as being anticipated by the Atwater et al. article entitled "Thermodynamic And Kinetic Study of the Li/MnO₂Bi₂O₃ Electrochemical Couple" or the Atwater et al. abstract "Electrochemical Properties of the Li/MnO₂Bi₂O₃ Electrochemical Couple," rejected claims 3-4, 9, 15-16, 21, 27-28, 34, 42-43 and 47 under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, obvious under 35 U.S.C. § 103(a) over the aforementioned Atwater publications and rejected claims 6, 18, 30 and 45 as obvious under 35 U.S.C. § 103(a) over the aforementioned Atwater et al. publications. The Examiner also allowed claims 53-64, which are directed to a method for making a manganese mixed metal oxide cathode for a lithium electrochemical system.

Each objection, rejection and response is set forth in more detail below. The present Amendment cancels the objectionable and rejected claims 1-52. It is respectfully submitted that canceling objectionable and rejected claims 1-52 overcomes and obviates the Examiner's

objections and rejections. It is respectfully requested that allowed claims 53-64 pass to issue.

The Examiner objected to claims 12, 24, 39 and 52 under 37 CFR § 1.75 stating that these claims were substantial duplicates of claims 2, 14, 26 and 41, respectively. It is respectfully submitted that canceling 1-52 overcomes and obviates the Examiner's objections to those claims.

The Examiner provisionally rejected claims 1-52 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-36 of the of co-pending U.S. Patent Application Serial No. 10,339,258, entitled "Lithium Manganese Bismuth Mixed Metal Oxide For Rechargeable Electrochemical Systems." The Examiner stated that the conflicting claims were not identical, but are not patentably distinct from each other because the co-pending patent application claims a cathode material having the formula $\text{Li}_x\text{MnO}_2(\text{Bi}_2\text{O}_3)_y$, where x is greater than 0.45 and less than 0.55 and y is greater than 0.025 and less than 0.075, the compound having a reduced charge transfer impedance due to a catalytic reaction causing the cathode material to prevent an overcharge and a phase change with the compound remaining reversible against lithium. The Examiner also stated that the obviousness-type double patenting rejection was provisional because the conflicting claims have not yet been patented and that a timely filed Terminal Disclaimer in accordance with 37 CFR § 1.321(c) could overcome the provisional rejection, if the conflicting application is commonly owned with this application. It is respectfully submitted that canceling 1-52 overcomes and obviates the Examiner's provisional rejection of those claims. It is further respectfully submitted that claims 1-36 of the co-pending U.S. Patent Application Serial No. 10,339,258 will be revised and substantially modified in an Amendment about to be filed in that case.

The Examiner also rejected claims 1-2, 5, 7-8, 10-14, 17, 19-20, 22-26, 31-33, 35-41, 44, 46 and 48-52 under 35 U.S.C. § 102(b) as being anticipated by the Atwater et al. article or abstract. According to the Examiner, Atwater et al. teaches a bismuth oxide modified manganese dioxide cathode material in a battery with a cathode comprising $\text{Li}/\text{MnO}_2(\text{Bi}_2\text{O}_3)_{0.06}$ that has shown promise in rechargeable batteries. The Examiner also stated that the article teaches that such a cathode is useful in lithium batteries, the composition of a gelled electrolyte and the composition of the cathode. It is respectfully submitted that canceling 1-52 overcomes and

obviates the Examiner's 35 U.S.C. § 102(b) rejection of claims 1-2, 5, 7-8, 10-14, 17, 19-20, 22-26, 31-33, 35-41, 44, 46 and 48-52.

The Examiner also rejected 3-4, 9, 15-16, 21, 27-28, 34, 42-43 and 47 under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, obvious under 35 U.S.C. § 103(a) over the Atwater publications. The Examiner stated that the Atwater article teaches a bismuth oxide modified manganese dioxide cathode material in a battery, a cathode comprising $\text{MnO}_2(\text{Bi}_2\text{O}_3)_{0.06}$, graphite and an electrolyte. According to the Examiner, since the Atwater article teaches the same positive electrode comprising the specified positive active manganese bismuth mixed metal oxide compound and a Li anode, then the same cathode material with the same capacity must also inherently be obtained. The Examiner also described other attributes and characteristics of the devices. It is respectfully submitted that canceling 1-52 overcomes and obviates the Examiner's 35 U.S.C. §§ 102(b) and 103(a) rejection of claims 3-4, 9, 15-16, 21, 27-28, 34, 42-43 and 47.

The Examiner also rejected claims 6, 18, 30 and 45 as being obvious under 35 U.S.C. § 103(a) over the aforementioned Atwater et al. publications. The Examiner stated that the Atwater article teaches a cathode comprising $\text{MnO}_2(\text{Bi}_2\text{O}_3)_{0.06}$, but does not specifically teach a cathode comprising $\text{MnO}_2(\text{Bi}_2\text{O}_3)_{0.12}$. According to the Examiner, it would have been obvious to the hypothetical skilled artisan to use a cathode comprising $\text{MnO}_2(\text{Bi}_2\text{O}_3)_{0.12}$. It is respectfully submitted that canceling 1-52 overcomes and obviates the Examiner's 35 U.S.C. § 103(a) obviousness rejection of claims 6, 18, 30 and 45.

In summary, it is respectfully submitted that the Examiner's objections to claims 12, 24, 39 and 52 under 37 CFR § 1.75, provisional rejection of claims 1-52 under the judicially created doctrine of obviousness-type double patenting over claims 1-36 of co-pending U.S. Patent Application Serial No. 10,339,258, rejection of claims 1-2, 5, 7-8, 10-14, 17, 19-20, 22-26, 31-33, 35-41, 44, 46 and 48-52 under 35 U.S.C. § 102(b) as being anticipated by the Atwater et al. article and abstract, the rejection of claims 3-4, 9, 15-16, 21, 27-28, 34, 42-43 and 47 under 35 U.S.C. §§ 102(b) and 103(a) over the Atwater publications and the rejection of claims 6, 18, 30 and 45 as obvious under 35 U.S.C. § 103(a) over the aforementioned Atwater et al. publications have been overcome and obviated by this Amendment's canceling of claims 1-52. It is

respectfully requested that allowed claims 53-64 pass to issue.

Should the Examiner require further information, the Examiner is invited to telephone the applicants' attorney at the telephone number listed below.

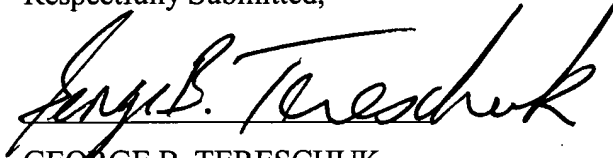
5

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10

Respectfully Submitted,



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15